

Please replace claims 11-20 with the following amended claims.

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11. (Amended) An isolated gene encoding an antimicrobial protein which can be obtained from a fraction of an aqueous extract of *Lyophyllum shimeji* precipitated by the ammonium sulfate precipitation method, wherein said protein has an antimicrobial activity at least against *Rhizoctonia solani* or *Pyricularia oryzae*, and shows the presence of components of about 70 kDa and/or about 65 kDa in molecular weight in the SDS-PAGE method; or

wherein said antimicrobial protein has an amino acid sequence of SEQ ID NO:2, or has 50% or more homology with said sequence and has an antimicrobial activity against *Rhizoctonia solani* or *Pyricularia oryzae*; or

wherein said protein comprises a single polypeptide having a partial amino acid sequence of amino acid residues 76 to 618 of SEQ ID NO:2, or a polypeptide having 50% or more homology with said partial amino acid sequence and having an antimicrobial activity against *Rhizoctonia solani* or *Pyricularia oryzae*, or a combination of these polypeptides.

12. (Amended) The isolated gene according to Claim 11, encoding an antimicrobial protein and having a base sequence of SEQ

ID NO:1, or a base sequence which is complementary to a base sequence which hybridizes to SEQ ID NO:1 under stringent conditions of 6 x SSC, 45°C to 68°C (without formamide) or 25°C to 50°C (with 50% formamide).

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cont 13. (Amended) The isolated gene according to Claim 11 encoding a protein having antimicrobial activity and having a 50% or more homology with the base sequence of SEQ ID NO:1.

14. (Amended) The isolated gene according to Claim 11 encoding a protein having antimicrobial activity and having a 60% or more homology with the base sequence of SEQ ID NO:1.

15. (Amended) The isolated gene according to Claim 11 encoding a protein having antimicrobial activity and having a 70% or more homology with the base sequence of SEQ ID NO:1.

16. (Amended) The isolated gene according to Claim 11 encoding a protein having antimicrobial activity and having an 80% or more homology with the base sequence of SEQ ID NO:1.

17. (Amended) The isolated gene according to Claim 11 encoding a protein having antimicrobial activity and having a 90% or more homology with the base sequence of SEQ ID NO:1.

18. (Amended) The isolated gene according to Claim 11 encoding a protein having antimicrobial activity and having a 95% or more homology with the base sequence of SEQ ID NO:1.

19. (Amended) An oligonucleotide for obtaining a gene encoding an antimicrobial protein originated from *Lyophyllum shimeji* produced by a process comprising:

selecting two domains from the base sequence of the gene of SEQ ID NO:1 wherein said domains satisfy the following requirements:

1) each domain consists of 15 to 30 bases; and

2) each domain has 40 to 60% of G+C;

preparing single-stranded DNAs having base sequences which are identical to the base sequences of said domains or complementary thereto, or preparing a single-stranded DNA mixture having degeneracy in the genetic code which ensures that the amino acid residues coded by said single-stranded DNAs are not changed; and optionally modifying the single-stranded DNAs while avoiding

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damage to the binding specificity to the base sequence of said gene encoding the antimicrobial protein.

20. (Amended) The oligonucleotide according to claim 19 having a nucleotide sequence of any one of SEQ ID NOS:7 to 12.

Please add the following new claims 28-32.

28. The isolated gene according to claim 11, encoding an antimicrobial protein, wherein said antimicrobial protein has pyranose oxidase activity.

29. An isolated gene encoding an antimicrobial protein and having a base sequence of SEQ ID NO:1, or a base sequence which is complementary to a base sequence which hybridizes to SEQ ID NO:1 under stringent conditions of 6 x SSC, 45°C to 68°C (without formamide) or 25°C to 50°C (with 50% formamide).

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30. An isolated gene encoding an antimicrobial protein which can be obtained from a fraction of an aqueous extract of *Lyophyllum shimeji* precipitated by the ammonium sulfate precipitation method, wherein said protein has an antimicrobial activity at least against *Rhizoctonia solani* or *Pyricularia oryzae*, and shows the presence of

components of about 70 kDa and/or about 65 kDa in molecular weight in the SDS-PAGE method.

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31. An isolated gene encoding an antimicrobial protein which can be obtained from a fraction of an aqueous extract of *Lyophyllum shimeji* precipitated by the ammonium sulfate precipitation method, wherein said protein has an antimicrobial activity at least against *Rhizoctonia solani* or *Pyricularia oryzae*, and shows the presence of components of about 70 kDa and/or about 65 kDa in molecular weight in the SDS-PAGE method; and wherein said gene according has a base sequence of SEQ ID NO:1 or a base sequence which is complementary to a base sequence which hybridizes to SEQ ID NO:1 under stringent conditions of 6 x SSC, 45°C to 68°C (without formamide) or 25°C to 50°C (with 50% formamide).

32. An oligonucleotide for obtaining a gene encoding an antimicrobial protein originated from *Lyophyllum shimeji* produced by a process comprising:

selecting two domains from the base sequence of the gene of SEQ ID NO:1, wherein said domains satisfy the following requirements:

- 1) each domain consists of 15 to 30 bases; and
- 2) each domain has 40 to 60% of G+C; and

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as conclude preparing single-stranded DNAs having base sequences which are identical to the base sequences of said domains or complementary thereto, or preparing a single-stranded DNA mixture having degeneracy in the genetic code which ensures that the amino acid residues coded by said single-stranded DNAs are not changed.
